



SEQUENCE LISTING

<110> HAMADA, Kazuyuki et al.

<120> MUTANT BARNASE GENE AND TRANSGENIC PLANT TRANSFORMED BY SAID GENE

<130> 0230-0148P

<140> 09/509,945

<141> 2000-04-04

<160> 7

<170> PatentIn version 3.1

<210> 1

<211> 343

<212> DNA

<213> Bacillus amyloliquefaciens

<220>

<221> misc_feature

<223> wild type barnase gene

<220>

<221> CDS

<222> (1)..(336)

<223>

<400> 1

atg gta ccg gtt atc aac acg ttt gac ggg gtt gcg gat tat ctt cag	48
Met Val Pro Val Ile Asn Thr Phe Asp Gly Val Ala Asp Tyr Leu Gln	
1 5 10 15	
aca tat cat aag cta cct gat aat tac att aca aaa tca gaa gca caa	96
Thr Tyr His Lys Leu Pro Asp Asn Tyr Ile Thr Lys Ser Glu Ala Gln	
20 25 30	
gcc ctc ggc tgg gtg gca tca aaa ggg aac ctt gca gac gtc gct ccg	144
Ala Leu Gly Trp Val Ala Ser Lys Gly Asn Leu Ala Asp Val Ala Pro	
35 40 45	
ggg aaa agc atc ggc gga gac atc ttc tca aac agg gaa ggc aaa ctc	192
Gly Lys Ser Ile Gly Gly Asp Ile Phe Ser Asn Arg Glu Gly Lys Leu	
50 55 60	
ccg ggc aaa agc gga cga aca tgg cgt gaa gcg gat att aac tat aca	240
Pro Gly Lys Ser Gly Arg Thr Trp Arg Glu Ala Asp Ile Asn Tyr Thr	
65 70 75 80	
tca ggc ttc aga aat tca gac cgg att ctt tac tca agc gac tgg ctg	288
Ser Gly Phe Arg Asn Ser Asp Arg Ile Leu Tyr Ser Ser Asp Trp Leu	
85 90 95	

att tac aaa aca acg gac cat tat cag acc ttt aca aaa atc aga taa 336
 Ile Tyr Lys Thr Thr Asp His Tyr Gln Thr Phe Thr Lys Ile Arg 110
 100 105 110

ggtaacc 33 343

<210> 2
 <211> 111
 <212> PRT
 <213> Bacillus amyloliquefaciens

<220>
 <221> misc_feature
 <223> wild type barnase amino acid sequence

<400> 2

Met Val Pro Val Ile Asn Thr Phe Asp Gly Val Ala Asp Tyr Leu Gln
 1 5 10 15

Thr Tyr His Lys Leu Pro Asp Asn Tyr Ile Thr Lys Ser Glu Ala Gln
 20 25 30

Ala Leu Gly Trp Val Ala Ser Lys Gly Asn Leu Ala Asp Val Ala Pro
 35 40 45

Gly Lys Ser Ile Gly Gly Asp Ile Phe Ser Asn Arg Glu Gly Lys Leu
 50 55 60

Pro Gly Lys Ser Gly Arg Thr Trp Arg Glu Ala Asp Ile Asn Tyr Thr
 65 70 75 80

Ser Gly Phe Arg Asn Ser Asp Arg Ile Leu Tyr Ser Ser Asp Trp Leu
 85 90 95

Ile Tyr Lys Thr Thr Asp His Tyr Gln Thr Phe Thr Lys Ile Arg
 100 105 110

<210> 3
 <211> 342
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> A mutant barnase gene derived from Bacillus amyloliquefaciens

<400> 3
 atggtaccgg ttattcaaca cgtttgacgg ggttgccgat tatcttcaga catatcataa 60
 2

gctacctgat aattacatta.caaaatcaga agcacaagcc ctcggtctggg tggcatcaaa	120
agggaaacctt gcagacgtcg ctccggggaa aagcatcggc ggagacatct tctcaaacag	180
ggaaggcaaa ctcccgggca aaagcggacg aacatggcgt gaagcggata ttaactatac	240
atcaggcttc agaaattcag accggattct ttactcaagc gactggctga tttacaaaac	300
aacggaccat tatcagacct ttacaaaaat cagtaatcta ga	342

Y
A
!
li!

<210> 4
 <211> 6548
 <212> DNA
 <213> Escherichia coli LE392

<220>
 <221> misc_feature
 <223> Clone: pTS172

<400> 4	
aattcaagct tgacgtcagg tggcactttt cggggaaatg tgcgcggaac ccctatttgt	60
ttatttttct aaatacatct aaatatgtat ccgctcatga gacaataacc ctgataaatg	120
cttcaataat attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt	180
cccttttttg cggcattttg ccttcctggt tttgctcacc cagaaacgct ggtgaaagta	240
aaagatgctg aagatcagtt ggggtgcacga gtgggttaca tcgaactgga tctcaacagc	300
ggtaagatcc ttgagagttt tcgccccgaa gaacgttttc caatgatgag cactttttaa	360
gttctgctat gtggcgcggt attatcccggt attgacgccg ggcaagagca actcggtcgc	420
cgcatacact attctcagaa tgacttggtt gagtactcac cagtcacaga aaagcatctt	480
acggatggca tgacagtaag agaattatgc agtgctgcc aaccatgag tgataaact	540
gcggccaact tacttctgac aacgatcgga ggaccgaagg agctaaccgc ttttttgac	600
aacatggggg atcatgtaac tcgccttgat cgttgggaac cggagctgaa tgaagccata	660
ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg caacaacggt gcgcaaacta	720
ttaactggcg aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg	780
gataaagttg caggaccact tctgcgtcg gcccttcgg ctggctgggt tattgctgat	840
aaatctggag ccggtgagcg tgggtctcgc ggtatcattg cagcactggg gccagatgg	900
aagccctccc gtatcgtagt tatctacacg acggggagtc aggcaactat ggatgaacga	960
aatagacaga tcgctgagat aggtgcctca ctgattaagc attggtaact gtcagaccaa	1020

gtttactcat atatacttta.gattgattta aaacttcatt tttaatttaa aaggatctag 1080
 gtgaagatcc tttttggctc gagtctcatg accaaaatcc cttaacgtga gttttcgttc 1140
 cactgagcgt cagaccccggt agaaaagatc aaaggatctt cttgagatcc tttttttctg 1200
 cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac cagcgggtggg ttgtttgccg 1260
 gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca 1320
 aatactgtcc ttctagtgtg gccgtagtta ggccaccact tcaagaactc tgtagcaccg 1380
 cctacatacc tcgctctgct aatcctgtta ccagtggctg ctgccagtgg cgataagtcg 1440
 tgtcttaccg ggttggaactc aagacgatag ttaccggata aggcgcagcg gtcgggctga 1500
 acgggggggtt cgtgcacaca gccagccttg gagcgaacga cctacaccga actgagatac 1560
 ctacagcgtg agcattgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggat 1620
 ccggtaaagc gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc 1680
 tggatatctt atagtctgt cgggtttcgc cacctctgac ttgagcgtcg atttttgtga 1740
 tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt ttacggttc 1800
 ctggcctttt gctggccttt tgctcacatg ttctttcctg cgttatcccc tgattctgtg 1860
 gataaccgta ttaccgcctt tgagtgaagt gataccgctc gccgcagccg aacgaccgag 1920
 cgcagcgaat cagtgaagca ggaagcggaa gagcgcccaa tacgcaaacc gcctctcccc 1980
 gcgcgttggc ctgatcagaa ttcatatgca cgtgttcccc atctagtaac atagatgaca 2040
 ccgcgcgcga taatttatcc tagtttgccg gctatatctt gttttctatc gcgtattaaa 2100
 tgtataattg cgggactcta atcataaaaa cccatctcat aaataacgtc atgcattaca 2160
 tgttaattat tacatgctta acgtaattca acagaaatta tatgataatc atcgcaagac 2220
 cggcaacagg attcaatctt aagaaacttt attgccaaat gtttgaacga tctgcttcgg 2280
 aggttacctt atctgatttt tgtaaaggtc tgataatggg ccggttgttt gtaaatcagc 2340
 cagtcgcttg agtaaagaat ccggtctgaa tttctgaagc ctgatgtata gttaatatcc 2400
 gcttcacgcc atgttcgtcc gcttttgccc gggagtttgc cttccctgtt tgagaagatg 2460
 tctccgccga tgcttttccc cggagcgacg tctgcaagggt tcccttttga tgccaccacg 2520
 ccgagggctt gtgcttctga ttttgtaatg taattatcag gtagcttatg atatgtctga 2580
 agataatccg caaccccgtc aaacgtgttg ataaccggta ccatcgcgac ggcttgatgg 2640
 atctcttgct ggacaccggg atgctaggat gggttatcgt ggccggcgtg cgtgtgtggc 2700

ttttgtaggc gccggcgacg gccgggggcaa tgtggcaggt gagtcacggt gcaagcgtgc	2760
gcaagtgact gcaacaacca aggacggtca tggcgaaagc acctcacgcg tccaccgtct	2820
acaggatgta gcagtagcac ggtgaaagaa gtgtttgtccc gtccattagg tgcattctca	2880
ccgttggcca gaacaggacc gttcaacagt taggttgagt gtaggacttt tacgtggtta	2940
atgtatggca aatagtagta aattttgccc ccattggtct ggctgagata gaacatatc	3000
tggaaagcct ctagcatatc ttttttgaca gctaaacttt gcttcttgcc ttcttggctc	3060
agcaatgacg ttgcccatgt cgtggcaaac atctggtaag gtaactgtat tcgtttgttc	3120
ccttcaacgg ctcaatcccc acaggccaag ctatcctttc cttggcagta taggctcctt	3180
gagagattat actaccatctt ttaagtgcct ataaagacga tgctctctaa ccagatcgat	3240
cagaaacaca aagtttttagc agcgtaatat cccacacaca tacacacacg aagctatgcc	3300
tcctcatctt ccgagagatt ctgacagtga ccagaatgtc agaatgccat ttcattgggca	3360
caagtcgac cacaagcttc ttgggtggagg tcaagggtgtg ctattattat tcgctttcta	3420
ggaaattatt cagaattagt gccttttatc ataacttctc tctgagccga tgtggttttg	3480
gatttcattg ttgggagcta tgcagttgcg gatattctgc tgtggaagaa caggaaacta	3540
tctgcggggg tccttgctgg ggcaacattg atatggttcc tgttcgatgt agtagaatac	3600
aatataattc cgctcctttg ccagattgcc attccttgcca tgcttgatgat cttcatttgg	3660
tcaaagtcg caccactctt ggacaggat tagctttatt tcctgtggag atggtagaaa	3720
actcagctta cagaaatggc atttcacgta gtataacgca agacattagg tactaaaact	3780
caactaactg tttccgaatt tcagggcccc tccaaggatc ccagaaatca tcctctctga	3840
acatgccttc agagaaatgg cattgaccgt ccattacaaa ctaacgtaca ctgtatctgt	3900
tctttacgac attgcatgtg gaaaggatct gaagagattt ctctggtac ataataatct	3960
actcctttgc tacgttaata agagatgtaa aaacatgcaa cagttccagt gccaacattg	4020
tccaaggatt gtgcaattct ttctggagcg ctaaaattga ccagattaga cgcacagaa	4080
tattgaattg cagagttagc caataatcct cataatgtta atgtgctatt gttgttact	4140
actcaatata gttctggact aacaatcaga ttgtttatga tattaagggtg gttggatctc	4200
tattgggtatt gtcggcgatt ggaagtctct gcagcttgac aagtctacta tatattggta	4260
gggtattccag ataaatatta aattttaata aaacaatcac acagaaggat ctgcggccgc	4320
tagcctaggc ccgggcccac aaaaatctga gcttaacagc acagttgctc ctctcagagc	4380

agaatcgggt attcaacacc ctcatatcaa ctactacgtt gtgtataacg gtccacatgc	4440
cggatatatac gatgactggg gttgtacaaa ggcggcaaca aacggcggtc ccggagttgc	4500
acacaagaaa tttgccacta ttacagaggc aagagcagca gctgacgcgt acacaacaag	4560
tcagcaaaca gacaggttga acttcatccc caaaggagaa gctcaactca agcccaagag	4620
ctttgctaag gccctaacaa gcccaccaaa gcaaaaagcc cactgggtca cgctaggaac	4680
caaaaggccc agcagtgatc cagcccaaaa agagatctcc tttgccccgg agattacaat	4740
ggacgatttc ctctatcttt acgatctagg aaggaagttc gaaggtgaag gtgacgacac	4800
tatgttcacc actgataatg agaaggttag cctcttcaat ttcagaaaga atgctgaccc	4860
acagatgggt agagaggcct acgcagcagg tctcatcaag acgatctacc cgagtaacaa	4920
tctccaggag atcaaatacc ttccaagaa ggttaaagat gcagtcaaaa gattcaggac	4980
taattgcac aagaacacag agaaagacat atttctcaag atcagaagta ctattccagt	5040
atggacgatt caaggcttgc ttcataaacc aaggcaagta atagagattg gagtctctaa	5100
aaaggtagtt cctactgaat ctaaggccat gcatggagtc taagattcaa atcgaggatc	5160
taacagaact cgccgtgaag actggcgaac agttcataca gagtctttta cgactcaatg	5220
acaagaagaa aatcttcgtc aacatggtgg agcacgacac tctggtctac tccaaaaatg	5280
tcaaagatac agtctcagaa gaccaaaggg ctattgagac ttttcaacaa aggataattt	5340
cgggaaacct cctcggattc cattgcccag ctatctgtca cttcatcgaa aggacagtag	5400
aaaaggaagg tggctcctac aaatgccatc attgcgataa aggaaaggct atcattcaag	5460
atgcctctgc cgacagtggc cccaaagatg gacccccacc cacgaggagc atcgtggaaa	5520
aagaagacgt tccaaccacg tcttcaaagc aagtggattg atgtgacatc tccactgacg	5580
taagggatga cgcacaatcc cactatcctt cgcaagaccc ttcctctata taaggaagtt	5640
catttcattt ggagaggaca cgctgaaatc accagtctct ctctataaat ctatctctct	5700
ctctataacc atggacccag aacgacgccc ggccgacatc cgccgtgcc a ccgaggcgga	5760
catgccggcg gtctgcacca tcgtcaacca ctacatcgag acaagcacgg tcaacttccg	5820
taccgagccg caggaaccgc aggagtggac ggacgacctc gtccgtctgc gggagcgcta	5880
tccctggctc gtcgccgagg tggacggcga ggtcgccggc atcgccctac cgggcccctg	5940
gaaggcacgc aacgcctacg actggacggc cgagtcgacc gtgtacgtct ccccccgcca	6000
ccagcggacg ggactgggct ccacgtctta caccacctg ctgaagtccc tggaggcaca	6060

gggcttcaag agcgtggtcg, ctgtcatcgg gctgccaac gacccgagcg tgcgcatgca	6120
cgaggcgctc ggatatgccc cccgcggcat gctgcgggcg gccggcttca agcacgggaa	6180
ctggcatgac gtgggtttct ggcagctgga cttcagcctg ccggtaccgc cccgtccggt	6240
cctgcccgtc accgagatct gagatcacgc gttctaggat ccccgatga gctaagctag	6300
ctatatcatc aatttatgta ttacacataa tatcgactc agtctttcat ctacggcaat	6360
gtaccagctg atataatcag ttattgaaat atttctgaat ttaaacttgc atcaataaat	6420
ttatgttttt gcttggacta taatacctga cttgttattt tatcaataaa tatttaaaact	6480
atatttcttt caagatggga attaacatct acaaattgcc ttttcttacc gaccatgtac	6540
gtatcgcg	6548

<210> 5
 <211> 6539
 <212> DNA
 <213> Escherichia coli LE392

<220>
 <221> misc_feature
 <223> Clone: pTS431

<400> 5	
aattcaagct tgacgtcagg tggcactttt cggggaaatg tgcgcggaac ccctatttgt	60
ttatttttct aaatacattc aaatatgtat ccgctcatga gacaataacc ctgataaatg	120
cttcaataat attgaaaaag gaagagtatg agtattcaac atttccgtgt cgcccttatt	180
cccttttttg cggcattttg ccttcctggt tttgctcacc cagaaacgct ggtgaaagta	240
aaagatgctg aagatcagtt ggggtgcacga gtgggttaca tcgaactgga tctcaacagc	300
ggtaagatcc ttgagagttt tcgccccgaa gaacgttttc caatgatgag cactttttaa	360
gttctgctat gtggcgcggt attatcccggt attgacgccg ggcaagagca actcggtcgc	420
cgcatacact attctcagaa tgacttggtt gagtactcac cagtcacaga aaagcatctt	480
acggatggca tgacagtaag agaattatgc agtgctgcca taaccatgag tgataacact	540
gcggccaact tacttctgac aacgatcgga ggaccgaagg agctaaccgc ttttttgac	600
aacatggggg atcatgtaac tcgccttgat cgttgggaac cggagctgaa tgaagccata	660
ccaaacgacg agcgtgacac cacgatgcct gtagcaatgg caacaacgtt gcgcaaacta	720
ttaactggcg aactacttac tctagcttcc cggcaacaat taatagactg gatggaggcg	780

gataaagttg caggaccact. tctgcgctcg gcccttcg	ctggctggtt tattgctgat	840
aaatctggag ccggtgagcg tgggtctcgc ggtatcattg	cagcactggg gccagatggt	900
aagccctccc gtatcgtagt tatctacacg acggggagtc	aggcaactat ggatgaacga	960
aatagacaga tcgctgagat aggtgcctca ctgattaagc	attggtaact gtcagaccaa	1020
gtttactcat atatacttta gattgattta aaacttcatt	tttaatttaa aaggatctag	1080
gtgaagatcc tttttggctc gagtctcatg accaaaatcc	cttaacgtga gttttcgttc	1140
cactgagcgt cagaccccggt agaaaagatc aaaggatctt	cttgagatcc tttttttctg	1200
cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac	cagcgggtggt ttgtttgccc	1260
gatcaagagc taccaactct ttttcgaag gtaactggct	tcagcagagc gcagatacca	1320
aatactgtcc ttctagtgtg gccgtagtta ggccaccact	tcaagaactc tgtagcaccg	1380
cctacatacc tcgctctgct aatcctgtta ccagtggctg	ctgccagtgg cgataagtcg	1440
tgtcttaccg ggttggaactc aagacgatag ttaccggata	aggcgcagcg gtcgggctga	1500
acgggggggtt cgtgcacaca gccagcttg gagcgaacga	cctacaccga actgagatac	1560
ctacagcgtg agcattgaga aagcgccacg cttcccgaag	ggagaaaggc ggacaggtat	1620
ccggtaaagc gcagggtcgg aacaggagag cgacagagg	agcttccagg gggaaacgcc	1680
tggtatcttt atagtcctgt cgggtttcgc cacctctgac	ttgagcgtcg atttttgtga	1740
tgctcgtcag gggggcggag cctatggaaa aacgccagca	acgcggcctt ttacggttc	1800
ctggcctttt gctggccttt tgctcacatg ttctttcctg	cgttatcccc tgattctgtg	1860
gataaccgta ttaccgcctt tgagtgaact gataccgctc	gccgcagccg aacgaccgag	1920
cgcagcaggt cagtgaacga ggaagcggaa gagcgccaa	tacgcaaacc gcctctcccc	1980
gcgcgttggc ctgatcagaa ttcttcccga tctagtaaca	tagatgacac cgcgcgcgat	2040
aatttatcct agtttgcgcg ctatatcttg ttttctatcg	cgtattaaat gtataattgc	2100
gggactctaa tcataaaaac ccattctcata aataacgtca	tgcattacat gtttaattatt	2160
acatgcttaa cgtaattcaa cagaaattat atgataatca	tcgcaagacc ggcaacagga	2220
ttcaatctta agaaaacttta ttgccaaatg tttgaacgat	ctgcttcgga tcctctagat	2280
tactgatttt tgtaaaggtc tgataatggt ccgttggttt	gtaaatcagc cagtcgcttg	2340
agtaaagaat ccggtctgaa tttctgaagc ctgatgtata	gttaatatcc gcttcacgcc	2400
atgttcgtcc gcttttgccc gggagtttgc cttccctggt	tgagaagatg tctccgccga	2460

tgcttttccc	cggagcgacg	tctgcaaggt	tcccttttga	tgccaccag	ccgagggctt	2520
gtgcttctga	ttttgtaatg	taattatcag	gtagcttatg	atatgtctga	agataatccg	2580
caaccccgtc	aaacgtggtg	aataaccggt	accatcgcg	cggttgatg	gatctcttgc	2640
tggacaccgg	gatgctagga	tggttatcg	tgccggcggt	gcgtgtgtgg	ctttttagg	2700
cgccggcgac	ggcgggggca	atgtggcagg	tgagtcacgg	tgcaagcgtg	cgcaagtgc	2760
tgcaacaacc	aaggacggtc	atggcgaaag	cacctcacgc	gtccaccgtc	tacaggatgt	2820
agcagtagca	cggtgaaaga	agtgttgctc	cgtccattag	gtgcattctc	accgttggcc	2880
agaacaggac	cgttcaacag	ttaggttgag	tgtaggactt	ttacgtgggt	aatgtatggc	2940
aaatagtagt	aaattttgcc	ccatttggtc	tggttgagat	agaacatatt	ctggaaagcc	3000
tctagcatat	cttttttgac	agctaaactt	tgcttcttgc	cttcttggtc	tagcaatgac	3060
gttgcccatg	tcgtggcaaa	catctggtaa	ggtaactgta	ttcgtttgtt	cccttcaacg	3120
gctcaatccc	cacaggccaa	gctatccttt	ccttggcagt	ataggctcct	tgagagatta	3180
tactaccatt	tttaagtgct	tataaagacg	atgctctcta	accagatcga	tcagaaacac	3240
aaagttttag	cagcgtaata	tcccacacac	atacacacac	gaagctatgc	ctcctcattt	3300
tccgagagat	tctgacagtg	accagaatgt	cagaatgcc	tttcatgggc	acaagtcgat	3360
ccacaagctt	cttggtggag	gtcaaggtgt	gctattatta	ttcgttttct	aggaaattat	3420
tcagaattag	tgctttttat	cataacttct	ctctgagccg	atgtgggtttt	ggatttcatt	3480
gttgggagct	atgcagttgc	ggatattctg	ctgtggaaga	acaggaactt	atctgcgggg	3540
gtccttgctg	gggcaacatt	gatatggttc	ctgttcgatg	tagtagaata	caatataatt	3600
ccgctccttt	gccagattgc	cattcttgcc	atgcttgtga	tcttcatttg	gtcaaagtgc	3660
gcaccactct	tggacaggta	ttagctttat	ttcctgtgga	gatggtagaa	aactcagctt	3720
acagaaatgg	catttcacgt	agtataacgc	aagacattag	gtactaaaac	tcaactaact	3780
gtttccgaat	ttcaggggcc	ctccaaggat	cccagaaatc	atcatctctg	aacatgcctt	3840
cagagaaatg	gcattgaccg	tccattacaa	actaacgtac	actgtatctg	ttctttacga	3900
cattgcatgt	ggaaaggatc	tgaagagatt	tctcctggta	cataataatc	tactcctttg	3960
ctacgttaat	aagagatgta	aaaacatgca	acagttccag	tgccaacatt	gtccaaggat	4020
tgtgcaattc	tttctggagc	gctaaaattg	accagattag	acgcatcaga	atattgaatt	4080
gcagagttag	ccaataatcc	tcataatggt	aatgtgctat	tgttgttcac	tactcaatat	4140

agttctggac taacaatcag attgtttatg atattaaggt ggttggatct ctattggtat	4200
tgtcggcgat tggaagttct tgcagcttga caagtctact atatattggt aggtattcca	4260
gataaatatt aaattttaat aaaacaatca cacagaagga tctgcggccg ctagcctagg	4320
cccgggcca caaaaatctg agcttaacag cacagttgct cctctcagag cagaatcggg	4380
tattcaacac cctcatatca actactacgt tgtgtataac ggtccacatg ccggtatata	4440
cgatgactgg ggttgtacaa aggcggcaac aaacggcggt cccggagttg cacacaagaa	4500
atttgccact attacagagg caagagcagc agctgacgcg tacacaacaa gtcagcaaac	4560
agacaggttg aacttcatcc ccaaggaga agctcaactc aagcccaaga gctttgctaa	4620
ggccctaaca agcccaccaa agcaaaaagc ccactggctc acgctaggaa ccaaaaggcc	4680
cagcagtgat ccagcccaa aagagatctc ctttgccccg gagattacaa tggacgattt	4740
cctctatctt tacgatctag gaaggaagtt cgaagggtgaa ggtgacgaca ctatgttcac	4800
cactgataat gagaaggtta gcctcttcaa tttcagaaag aatgctgacc cacagatggt	4860
tagagaggcc tacgcagcag gtctcatcaa gacgatctac ccgagtaaca atctccagga	4920
gatcaaatac cttccaaga aggttaaaga tgcagtcaaa agattcagga ctaattgcat	4980
caagaacaca gagaaagaca tattttctcaa gatcagaagt actattccag tatggacgat	5040
tcaaggcttg cttcataaac caaggcaagt aatagagatt ggagtctcta aaaaggtagt	5100
tcctactgaa tctaaggcca tgcattgagt ctaagattca aatcgaggat ctaacagaac	5160
tcgccgtgaa gactggcgaa cagttcatac agagtctttt acgactcaat gacaagaaga	5220
aaatcttcgt caacatggtg gagcacgaca ctctgggtcta ctccaaaaat gtcaaagata	5280
cagtctcaga agaccaaagg gctattgaga cttttcaaca aaggataatt tcgggaaacc	5340
tcctcggatt ccattgccca gctatctgtc acttcatcga aaggacagta gaaaaggaag	5400
gtggctccta caaatgcat cattgcgata aaggaaaggc tatcattcaa gatgcctctg	5460
ccgacagtgg tcccaaagat ggacccccac ccacgaggag catcgtggaa aaagaagacg	5520
ttccaaccac gtcttcaaag caagtggatt gatgtgacat ctccactgac gtaagggatg	5580
acgcacaatc ccactatcct tcgcaagacc ctctctctat ataaggaagt tcatttcatt	5640
tggagaggac acgctgaaat caccagtctc tctctataaa tctatctctc tctctataac	5700
catggacca gaacgacgcc cggccgacat ccgccgtgcc accgaggcgg acatgccggc	5760
ggtctgcacc atcgtcaacc actacatcga gacaagcacg gtcaacttcc gtaccgagcc	5820

gcaggaaccg caggagtgga, cggacgacct cgtccgtctg cgggagcgct atccctggct 5880
 cgtcgccgag gtggacggcg aggtcgccgg catcgacctac gcgggcccct ggaaggcacg 5940
 caacgcctac gactggacgg ccgagtcgac cgtgtacgtc tccccccgcc accagcggac 6000
 gggactgggc tccacgctct acaccacact gctgaagtcc ctggaggcac agggcttcaa 6060
 gagcgtggtc gctgtcatcg ggctgcccac cgacccgagc gtgcgcatgc acgaggcgct 6120
 cggatatgcc ccccgcgcca tgctgcgggc ggccggcttc aagcacggga actggcatga 6180
 cgtgggtttc tggcagctgg acttcagcct gccggtaccg ccccgctccg tccctgccgt 6240
 caccgagatc tgagatcacg cgttctagga tccccgatg agctaagcta gctatatcat 6300
 caatttatgt attacacata atatcgact cagtctttca tctacggcaa tgtaccagct 6360
 gatataatca gttattgaaa tatttctgaa tttaaacttg catcaataaa tttatgtttt 6420
 tgcttgact ataataacctg acttggtatt ttatcaataa atatttaaac tatatttctt 6480
 tcaagatggg aattaacatc tacaaattgc cttttcttat cgaccatgta cgtatcgcg 6539

<210> 6
 <211> 37
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer 1 targeted to *Bacillus amyloliquefaciens*

<400> 6
 cgttcggctc gatggtaccg gttatcaaca cgtttga 37

<210> 7
 <211> 38
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Primer 2 targeted to *Bacillus amyloliquefaciens*

<400> 7
 cctctagatt atctgatttt tgtaaaggctc tgataatg 38